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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,198	03/31/2006	Hirokatsu Obayashi	Q94182	5892
65565	7590	01/08/2008		
SUGHRUE-265550			EXAMINER	
2100 PENNSYLVANIA AVE. NW			ROSS, DANA	
WASHINGTON, DC 20037-3213				
			ART UNIT	PAPER NUMBER
			3722	
			MAIL DATE	DELIVERY MODE
			01/08/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/574,198

Applicant(s)

OBAYASHI ET AL.

Examiner

Dana Ross

Art Unit

3722

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 December 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

1. This is a 2nd Non-Final Rejection in response to Applicant's arguments dated 10 December 2007.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by US Pat. No. 3,584,522 (Smafield, hereafter '522).

'522 expressly teaches it is well known in the art to have a machine tool with a tool break detector, specifically including a drill break detector (see abstract).

Examiner notes that a drill, such as taught by '522, contains a hole forming portion (the drill) that includes a hole forming tool (drill bit) which forms a hole through movement that moves the hole forming tool (tool bit) relatively to a contact (see col. 2, lines 45-75; col. 4, lines 40-55, for example) for contacting a tip of the hole forming tool (tool bit) so that the contact and the tip of the hole forming tool come into contact (see figures 5-7, for example) with circuitry disposed outside a processing chamber (see figures 5-7, for example) that senses and signals the breakage (see col. 1, lines 48-51; col. 4, lines 45-75, for example).

Examiner further notes that the limitation of "a breakage detector" as claimed is only directed to a "drill breakage detector" as defined in Applicant's disclosure.

The intended use of "for attaching a rimless frame in an eyeglass lens" is not a structural limitation that further limits the structure of the "breakage detector". A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art.

'522 expressly discloses a breakage detector that detects whether or not the hole forming tool (the tool bit) is broken (see abstract, col. 4, lines 46-75; col. 5, 1-12; col. 6, lines 1-11, for example).

'522 expressly discloses a transducer 34 with circuitry of the sensing means of any type which converts pressure increases and decreases into electrical impulses which would include sensing means via non-contact.

'522 further discloses the use of contacts with circuitry that includes the use of switches (see col. 3, line 59-col. 4, line 6, for example).

Re Claim 2, Examiner notes that "a contact for contacting a tip of the hole forming tool" includes the contact of the tip as disclosed in Figures 5-10.

Examiner notes that '522 does not expressly use the term "sensor". Examiner notes that the circuitry provided by '522 with the specific disclosure of "sensing means" meets the requirements of the claimed "sensor".

In the event Applicant asserts there is no sensor as claimed disclosed by '522, Applicant is referred to the below 35 USC 103 rejection.

4. Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by US Pat. No. 4,642,617 (Thomas et al., hereafter '617).

'617 teaches a tool break detection system for use with machine tools, including drills (see col. 4, lines 1-4, for example).

Examiner notes that '617 does not expressly disclose that drilling machine, or general machining centers, have either a hole forming portion (for example a drill portion or mill a mill portion) or a hole forming tool (tool bit). Examiner notes that it is inherent in machine tools to have a hole forming portion and a hole forming tool as is evidenced by '522 discussed above.

'617 expressly discloses it is well known in the art to mount a sensor in "good acoustic contact" with a part of the machine tool and "may be mounted within a reasonable distance from the tool-workpiece interface" and that the "mounting location of the vibration sensor for tool break detection is determined individually for each machine tool to be monitored" (see col. 3, lines 52-68, for example). This would include placing the contact for contacting a tip of the hole forming tool (machine tool) or via a non-contact sensor.

In the event Applicant asserts there is no sensor as claimed disclosed by '617, Applicant is referred to the below 35 USC 103 rejection.

5. Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by JP200343310 (hereafter '310).

'310 teaches a machine tool with a tool breakage sensing device (see abstract).

Examiner notes that the subject Patent is in Japanese and the abstract does not expressly use the claimed terminology. In the event Applicant asserts there is no sensor as claimed disclosed by '617, Applicant is referred to the below 35 USC 103 rejection.

6. Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by JP9085585 (hereafter '585).

'585 teaches a machine tool with a tool breakage sensing device (see abstract).

Examiner notes that the subject Patent is in Japanese and the abstract does not expressly use the claimed terminology. In the event Applicant asserts there is no sensor as claimed disclosed by '585, Applicant is referred to the below 35 USC 103 rejection.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over '522.

Examiner notes that '522 does not expressly use the term "sensor" but instead uses the terms "sensing means" and "switches" and general circuitry terminology.

Examiner notes that there are numerous types of sensors used in the machine tool art, including acoustic sensors, light sensors, capacitance sensors, micro switches, etc.

Examiner notes that Applicant has placed no criticality on the type of sensor used by disclosing the use of various sensors with Applicant's invention.

'521 does not expressly disclose the terminology of "sensor". The use of a sensor is notoriously well known in the machine tool art for the purpose of providing sensing means in the detecting of a tool break and such sensors are functional equivalents to '522's sensing means, and as such, it would be obvious, absent a statement of criticality, to substitute one known

functional equivalent for another, depending for example on the availability of components at the time of assembly. Note further that the provision of such a sensing means constitutes the claimed "sensor" whether through contact or non-contact since the sensing means is determining two different positions of the broken or non-broken tool through either a contact or non-contact of the air pressure. Furthermore, '522 shows that a sensing means of acoustic means is an equivalent known in the art to other sensing means (col. 2, lines 58-63). Therefore because the use of various sensing means are art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute the sensor for the sensing means.

Additionally, the claimed use of a sensor, or whatever well-known sensor configuration, would have been obvious because a particular known technique was recognized as part of the ordinary capabilities of one skilled in the art. In this instance, it would be obvious to use whatever sensor was desired or expedient at the time of the invention based on the availability of parts at the time.

Furthermore, all the claimed elements (the hole forming portion, breakage detector, contact sensor, etc.) were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention. The use of sensors is well known in the art and it would have been obvious to combine a known prior art sensor with the breakage detector sensor system as taught by '522.

Where a claimed improvement on a device or apparatus is no more than "the simple substitution of one known element for another or the mere application of a known technique to a

piece of prior art ready for improvement," the claim is unpatentable under 35 U.S.C. 103(a). Ex Parte Smith, 83 USPQ.2d 1509, 1518-19 (BPAI, 2007) (citing KSR v. Teleflex, 127 S.Ct. 1727, 1740, 82 USPQ2d 1385, 1396 (2007)). Accordingly Applicant claims a combination that only unites old elements with no change in the respective functions of those old elements, and the combination of those elements yields predictable results; absent evidence that the modifications necessary to effect the combination of elements is uniquely challenging or difficult for one of ordinary skill in the art, the claim is unpatentable as obvious under 35 U.S.C. 103(a). Ex Parte Smith, 83 USPQ.2d at 1518-19 (BPAI, 2007) (citing KSR, 127 S.Ct. at 1740, 82 USPQ2d at 1396. Accordingly, since the applicant[s] have submitted no persuasive evidence that the combination of the above elements is uniquely challenging or difficult for one of ordinary skill in the art, the claim is unpatentable as obvious under 35 U.S.C. 103(a) because it is no more than the predictable use of prior art elements according to their established functions resulting in the simple substitution of one known element for another or the mere application of a known technique to a piece of prior art ready for improvement.

Additionally, as to the use of a specific sensor, the claim would have been obvious because "a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense." Applicant has presented no criticality on the use of any particular sensor and it would be obvious to try to the different commercially available sensors depending on their availability and the configuration of the machining apparatus.

It is further noted that the claim would have been obvious because the substitution of one known element for another would have yielded predictable results to one of ordinary skill in the art at the time of the invention. In this instance it would be obvious to substitute the well known sensing means with specific sensors that are well known in the machine tool art.

9. Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over '617.

'617 teaches all aspects of the claimed invention as discussed above.

Examiner notes that whereas '617 discloses the sensor and contact being "determined individually for each machine tool to be monitored", '617 does not expressly disclose the terminology of "a contact for contacting a tip of the hole forming tool" or the specific terminology of "a sensor detects movement of the contact".

Examiner notes that there are numerous types of sensors and contacts used in the machine tool art, including acoustic sensors, light sensors, capacitance sensors, micro switches, etc.

Examiner notes that Applicant has placed no criticality on the type of sensor or contact used by disclosing the use of various sensors with contact and non-contact with Applicant's invention.

Examiner notes that the use of a sensors and contacts are notoriously well known in the machine tool art for the purpose of providing sensing means in the detecting of a tool break and such sensors are functional equivalents to '615's sensor and contacts, and as such, it would be obvious, absent a statement of criticality, to substitute one known functional equivalent for another, depending for example on the availability of components at the time of assembly. Note further that the provision of such a detecting means with a sensor and contact constitutes the claimed "sensor" and "contact" limitations whether through contact or non-contact since the

detecting and sensors of '617 is for determining two different positions of the broken or non-broken tool through either a contact or non-contact. Furthermore, '522 shows that a sensors including accelerometers, vibration, acoustic and analog sensors is an equivalent known in the art to other sensors. Therefore because the use of various sensing means are art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute one known sensor and contact for another.

Additionally, the claimed use of a sensor, or whatever well-known sensor configuration, would have been obvious because a particular known technique was recognized as part of the ordinary capabilities of one skilled in the art. In this instance, it would be obvious to use whatever sensor was desired or expedient at the time of the invention based on the availability of parts at the time.

Furthermore, all the claimed elements (the hole forming portion, breakage detector, contact sensor, etc.) were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention. The use of sensors is well known in the art and it would have been obvious to combine a known prior art sensor with the breakage detector sensor system as taught by '617.

Where a claimed improvement on a device or apparatus is no more than "the simple substitution of one known element for another or the mere application of a known technique to a piece of prior art ready for improvement," the claim is unpatentable under 35 U.S.C. 103(a). Ex Parte Smith, 83 USPQ2d 1509, 1518-19 (BPAI, 2007) (citing KSR v. Teleflex, 127 S.Ct. 1727, 1740, 82 USPQ2d 1385, 1396 (2007)). Accordingly Applicant claims a combination that only

unites old elements with no change in the respective functions of those old elements, and the combination of those elements yields predictable results; absent evidence that the modifications necessary to effect the combination of elements is uniquely challenging or difficult for one of ordinary skill in the art, the claim is unpatentable as obvious under 35 U.S.C. 103(a). *Ex Parte Smith*, 83 USPQ.2d at 1518-19 (BPAI, 2007) (citing *KSR*, 127 S.Ct. at 1740, 82 USPQ2d at 1396. Accordingly, since the applicant[s] have submitted no persuasive evidence that the combination of the above elements is uniquely challenging or difficult for one of ordinary skill in the art, the claim is unpatentable as obvious under 35 U.S.C. 103(a) because it is no more than the predictable use of prior art elements according to their established functions resulting in the simple substitution of one known element for another or the mere application of a known technique to a piece of prior art ready for improvement.

Additionally, as to the use of a specific sensor, the claim would have been obvious because “a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense.” Applicant has presented no criticality on the use of any particular sensor and it would be obvious to try to the different commercially available sensors depending on their availability and the configuration of the machining apparatus.

It is further noted that the claim would have been obvious because the substitution of one known element for another would have yielded predictable results to one of ordinary skill in the art at the time of the invention. In this instance it would be obvious to substitute the well known sensing means with specific sensors that are well known in the machine tool art.

10. Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over '310.

See above rejections under '522 and '617 for obviousness.

11. Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over '585.

See above rejection under '522 and '617 for obviousness.

12. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over

JP2004009201 (hereafter '9201) in view of each of '522, '617, '310 and '585.

'9201 teaches an eyeglass lens processing apparatus with a piercing unit 201 for piercing various types of holes (see paragraphs 0017-0020, for example) in the lens; control unit 80 (see paragraph 0100, for example); milling 201 and grinding 213 (see paragraph 0011 and 0016, for example); data memory 82 for positioning (see paragraph 0034, for example); contact or non-contact sensors (see paragraph 0033, for example); contact feeler 102 (see paragraph 0101, for example).

'9201 teaches detecting the status of the tool with current fluctuation but does not expressly disclose the terminology "breakage detector" with the current fluctuation (see paragraph 0120 and 0121, for example).

The use of breakage detectors are notoriously well known in the art as taught by '522, '617, '310 and '585.

It would be obvious to one of ordinary skill in the art to modify the drilling processing device for rimless lens and lens grinding processing device as taught by '9201 to include the well known feature of the breakage detector as taught by the prior art for the purpose of providing a tool breakage sensing device capable of accurately sensing eventual broken condition even if the

tool has a small diameter without risk of any influencing the cycle time or working (see '310 abstract).

Examiner notes that the claimed eyeglass lens processing apparatus with a breakage detector would have been obvious because a particular known technique was recognized as part of the ordinary capabilities of one skilled in the art. In this instance, the use of a breakage detector with a machine tool is well known in the art as discussed in detail above.

All the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention. The claimed machine tool with a breakage detector are both well known in the art and perform for their individual intended use without any inventive step provided to distinguish over the prior art.

The claim would have been obvious because a person of ordinary skill in the art would have been motivated to combine the prior art to achieve the claimed invention and that there would have been a reasonable expectation of success. In this instance, the well known feature of eyeglass lens processing apparatus and breakage detectors are both known in the art and would have been obvious to combine with a reasonable expectation of success since the combination of the breakage detector has been shown to perform as required by other machine tools.

Where a claimed improvement on a device or apparatus is no more than "the simple substitution of one known element for another or the mere application of a known technique to a piece of prior art ready for improvement," the claim is unpatentable under 35 U.S.C. 103(a). Ex Parte Smith, 83 USPQ.2d 1509, 1518-19 (BPAI, 2007) (citing KSR v. Teleflex, 127 S.Ct. 1727,

1740, 82 USPQ2d 1385, 1396 (2007)). Accordingly Applicant claims a combination that only unites old elements with no change in the respective functions of those old elements, and the combination of those elements yields predictable results; absent evidence that the modifications necessary to effect the combination of elements is uniquely challenging or difficult for one of ordinary skill in the art, the claim is unpatentable as obvious under 35 U.S.C. 103(a). Ex Parte Smith, 83 USPQ.2d at 1518-19 (BPAI, 2007) (citing KSR, 127 S.Ct. at 1740, 82 USPQ2d at 1396. Accordingly, since the applicant[s] have submitted no persuasive evidence that the combination of the above elements is uniquely challenging or difficult for one of ordinary skill in the art, the claim is unpatentable as obvious under 35 U.S.C. 103(a) because it is no more than the predictable use of prior art elements according to their established functions resulting in the simple substitution of one known element for another or the mere application of a known technique to a piece of prior art ready for improvement.

The claim would have been obvious because “a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense.” In this instance since breakage detectors are well known in the machine tool art, it would be obvious to use the detector on any machine tool wherein there is the possibility of tool breakage.

Response to Arguments

13. Applicant's arguments with respect to claims 1-8 have been considered but are moot in view of the new ground(s) of rejection.

Applicant asserts that the prior art of '9201 shows a relationship between the driving current and variation of processing pressure of the cutter but does not detect the breaking of the tool. This argument was persuasive.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dana Ross whose telephone number is 571-272-4480. The examiner can normally be reached on Mon-Thurs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Monica Carter can be reached on 571-272-4475. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dana Ross/
Primary Examiner
Art Unit 3722